

## CLAIMS

1. Use, for dyeing keratin fibres, in particular human keratin fibres and more particularly the hair, of at least one latent pigment, which is soluble in a medium that is suitable for dyeing, and which can be chemically, thermally or photochemically converted in the fibres into water-insoluble pigment.

2. Use according to Claim 1, in which the latent pigment used according to the present invention is represented by formula (I)



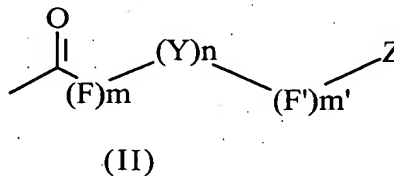
in which

x represents an integer ranging from 1 to 8,

A represents the chromophoric radical of dyes comprising a hetero atom chosen from N, O and S, and

- when  $x=1$ , B represents a group of formula (II),
- when  $x$  is greater than 1, B denotes a hydrogen atom or a group of formula (II),

B denoting at least once a group of formula (II), the group of formula (II) corresponds to



in which

Z represents a cationic water-solubilizing group  $Z^+$  or a polyethylene glycol residue,

Y represents a hetero atom chosen from the group formed by N, O and S, Y preferably being O,

F and F' represent, independently of each other, a linear or branched  $C_1-C_{14}$  alkylene chain, which may contain hetero atoms and may be substituted with one or more hydroxyl, amino or halogen groups,  
 n, m and m' denote, independently of each other, 0 or 1,

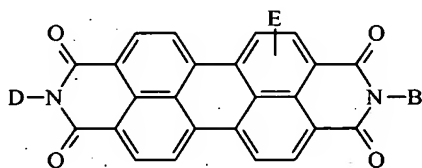
5 B being linked to a hetero atom chosen from the group N, O and S of the chromophore A.

3. Use according to Claim 2, in which  $Z^+$  is an aliphatic group, an aromatic group, a saturated or unsaturated carbocyclic group or a  
 10 heterocyclic group and bears at least one quaternized nitrogen atom.

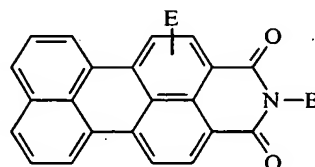
4. Use according to Claims 1 and 2, in which the chromophore A is the radical of dyes such as perylene, quinacridone, dioxazine, isoindoline, indigo, bisisoindoline, phthalocyanin, pyrrolopyrrole, quinophthalone, azo,  
 15 anthraquinone, indanthrone, isoindolinone, naphthoquinone, benzoquinone and azomethine.

5. Use according to one of Claims 1 to 3, in which the chromophoric radical of the dye A is chosen from:  
 20

- the perylene derivatives of formula (III) or (IV)



(III)



(IV)

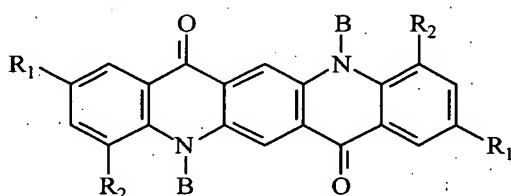
in which

25 D represents a hydrogen atom, a halogen atom, a linear or branched  $C_1-C_{24}$  and preferably  $C_1-C_6$  alkyl group, or a phenyl, benzyl or

phenethyl group optionally substituted with a C<sub>1</sub>-C<sub>6</sub> alkyl group, or a group of formula B,

E represents a hydrogen atom, a halogen atom, a linear or branched C<sub>1</sub>-C<sub>24</sub> and preferably C<sub>1</sub>-C<sub>6</sub> alkyl group, a C<sub>1</sub>-C<sub>6</sub> alkoxy group or a phenyl group,

- the quinacridones of formula (V)

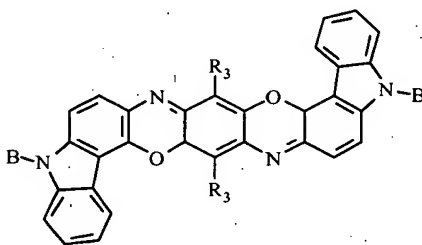


(V)

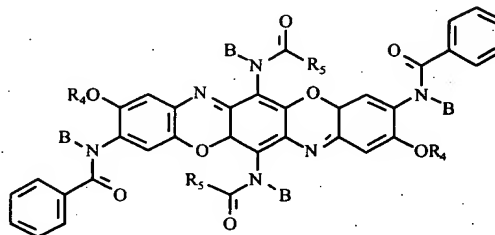
in which

R<sub>1</sub> and R<sub>2</sub>, independently of each other, represent a hydrogen atom, a halogen atom, a linear or branched C<sub>1</sub>-C<sub>24</sub> and preferably C<sub>1</sub>-C<sub>6</sub> alkyl group, a C<sub>1</sub>-C<sub>6</sub> alkoxy group or a phenyl group,

- dioxazines of formula (VI) or (VII)



VI



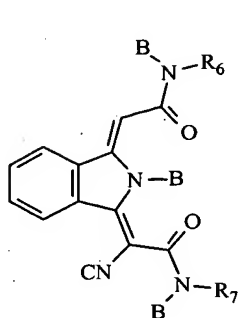
VII

in which

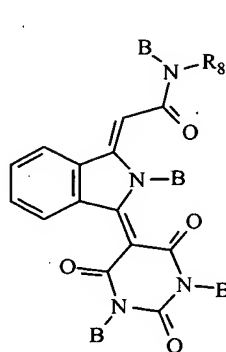
R<sub>3</sub> represents a hydrogen atom, a halogen atom or a linear or branched C<sub>1</sub>-C<sub>24</sub> and preferably C<sub>1</sub>-C<sub>6</sub> alkyl group,

R<sub>4</sub> and R<sub>5</sub>, independently of each other, represent a C<sub>1</sub>-C<sub>4</sub> alkyl group,

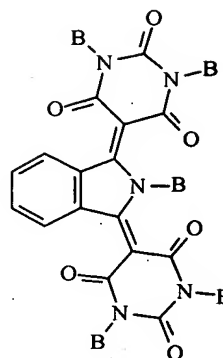
- the isoindolines of formula (VIII), (IX) or (X)



(VIII)



(IX)



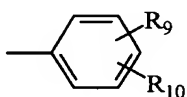
(X)

5 in which

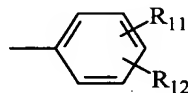
R<sub>6</sub> is represented by formula (XI),

R<sub>7</sub> represents a hydrogen atom, a linear or branched C<sub>1</sub>-C<sub>24</sub> and preferably C<sub>1</sub>-C<sub>6</sub> alkyl group, a benzyl group or a group of formula (XII),

10 R<sub>8</sub> represents a hydrogen atom, a group of formula (XI) or the group B,



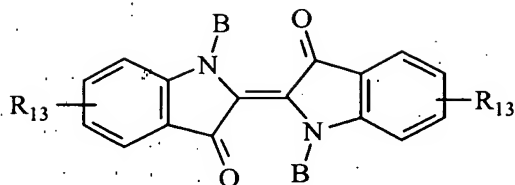
(XI)



(XII)

15 R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub> and R<sub>12</sub>, independently of each other, represent a hydrogen atom, a halogen atom, a linear or branched C<sub>1</sub>-C<sub>24</sub> and preferably C<sub>1</sub>-C<sub>6</sub> alkyl group, a C<sub>1</sub>-C<sub>6</sub> alkoxy group or a trifluoromethyl group,

- the indigo derivatives of formula (XIII)

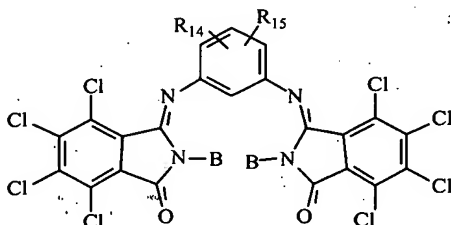


(XIII)

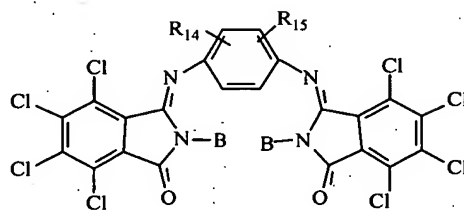
in which

$R_{13}$  represents a hydrogen atom, a halogen atom, a linear or branched  $C_1$ - $C_6$  alkyl group, a  $C_1$ - $C_6$  alkoxy group or a nitrile group,

- the bisindolinone derivatives of formula (XIV) or (XV)



(XIV)

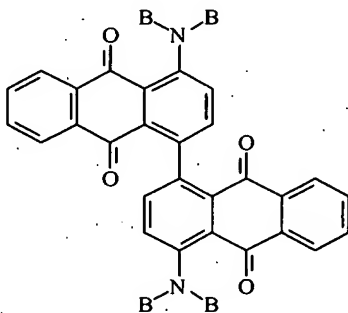


(XV)

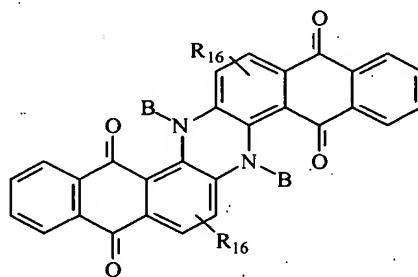
in which

$R_{14}$  and  $R_{15}$ , independently of each other, represent a hydrogen atom, a halogen atom or a linear or branched  $C_1$ - $C_4$  alkyl group,

- the anthraquinoid derivatives of formula (XVI) or (XVII)



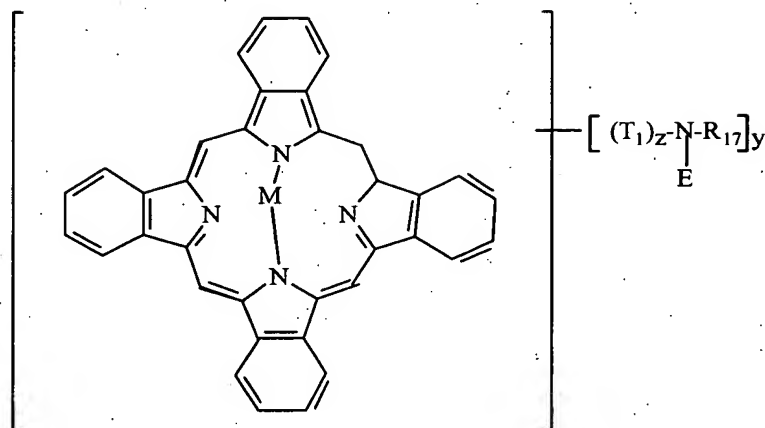
(XVI)



(XVII)

in which  $R_{16}$  represents a hydrogen atom or a halogen atom,

- the phthalocyanin derivatives of formula (XVIII)



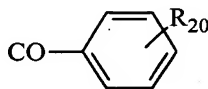
(XVIII)

in which

5 M represents  $H_2$ , a divalent metal chosen from copper, magnesium, iron, zinc, aluminium, manganese, calcium and barium, or a divalent metallic group such as  $MnO$  or  $TiO$ ,

$T_1$  represents a group  $-CHR_{18}-$ ,  $-CO-$  or  $-SO_2-$ ,

10  $R_{17}$  represents a hydrogen atom, a linear or branched  $C_1-C_6$  alkyl group, a group  $-N(B)R_{18}$ ,  $-N(B)_2$ ,  $-NHCOR_{19}$  or  $-COR_{19}$ , or a group of formula



$R_{18}$  represents a hydrogen atom or a linear or branched  $C_1-C_6$  alkyl group,

15  $R_{19}$  represents a linear or branched  $C_1-C_6$  alkyl group,

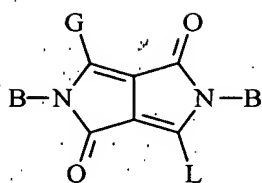
$R_{20}$  represents a hydrogen atom, a halogen atom, a linear or branched  $C_1-C_6$  alkyl group or a  $C_1-C_6$  alkoxy group,

$z$  represents 0 or 1,

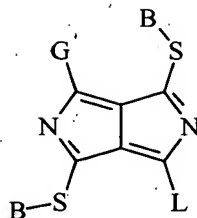
$y$  represents an integer from 1 to 8,

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- the pyrrolopyrrole derivatives of formula (XIX) or (XX)

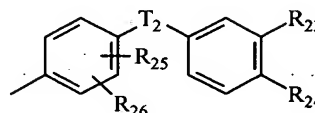
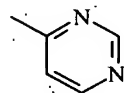
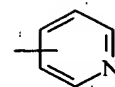
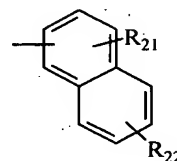
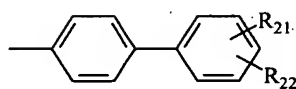
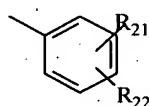


(XIX)



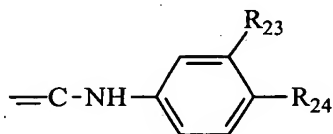
(XX)

in which G and L, independently of each other, may have the meaning:



$R_{21}$  and  $R_{22}$ , independently of each other, represent a hydrogen atom, a halogen atom, a linear or branched  $C_1$ - $C_{24}$  and preferably  $C_1$ - $C_6$  alkyl group, a  $C_1$ - $C_6$  alkoxy group, a  $C_1$ - $C_{18}$  alkylthio group, a  $C_1$ - $C_{18}$  alkylamino group, a cyano, nitro, phenyl, trifluoromethyl or  $C_5$ - $C_6$  cycloalkyl group, a group  $-C=N-$  ( $C_1$ - $C_{24}$  and preferably  $C_1$ - $C_6$  alkyl),

a group of formula



an imidazolyl, pyrazolyl, triazolyl, piperazinyl, pyrrolyl, oxazolyl, benzoxazolyl, benzothiazolyl, benzimidazolyl, morpholinyl, piperidyl or pyrrolidinyl radical,

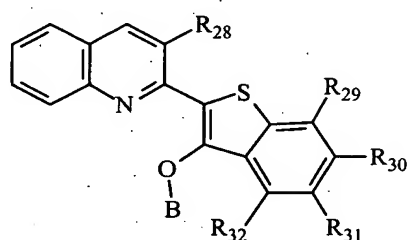
$T_2$  represents  $-CH_2-$ ,  $-CH(CH_3)-$ ,  $-C(CH_3)_2-$ ,  $-CH=N-$ ,  $-N=N-$ ,  $-O-$ ,  $-S-$ ,  $-SO-$ ,  $-SO_2-$  or  $-NHR_{27}$ ,

$R_{23}$  and  $R_{24}$ , independently of each other, represent a hydrogen atom, a halogen, a linear or branched  $C_1$ - $C_6$  alkyl group, a  $C_1$ - $C_6$  alkoxy group or  $-CN$ ,

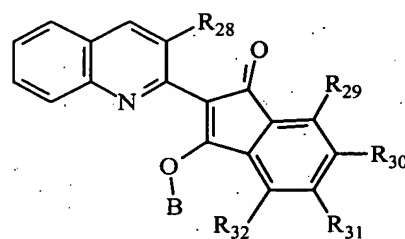
$R_{25}$  and  $R_{26}$ , independently of each other, represent a hydrogen atom, a halogen atom or a linear or branched  $C_1$ - $C_6$  alkyl group,

$R_{27}$  represents a hydrogen atom or a linear or branched  $C_1$ - $C_6$  alkyl group,

- the quinophthalone derivatives of formula (XXI) or (XXII)



(XXI)



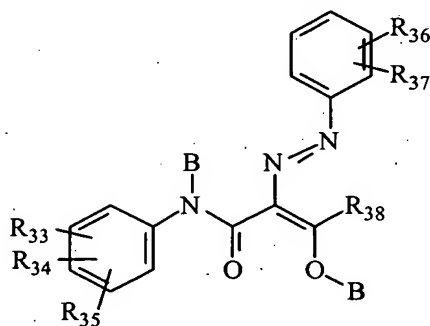
(XXII)

in which

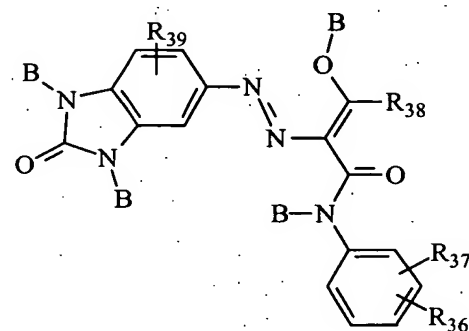
$R_{28}$  represents a hydrogen atom or a group OB,

$R_{29}$ ,  $R_{30}$ ,  $R_{31}$  and  $R_{32}$ , independently of each other, represent a hydrogen atom, a halogen atom, a linear or branched  $COO(C_1$ - $C_6)$ alkyl group or a linear or branched  $CONH(C_1$ - $C_6)$ alkyl group,

- the azo compounds of formulae (XXIII) to (XXVIII)

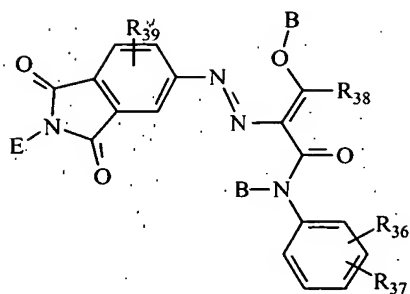


(XXIII)

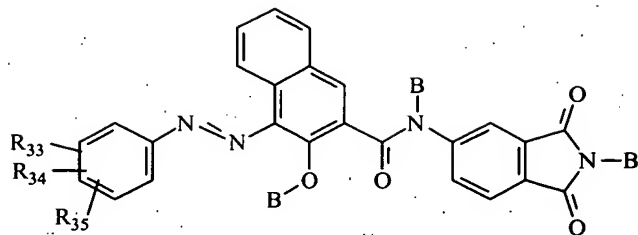


(XXIV)

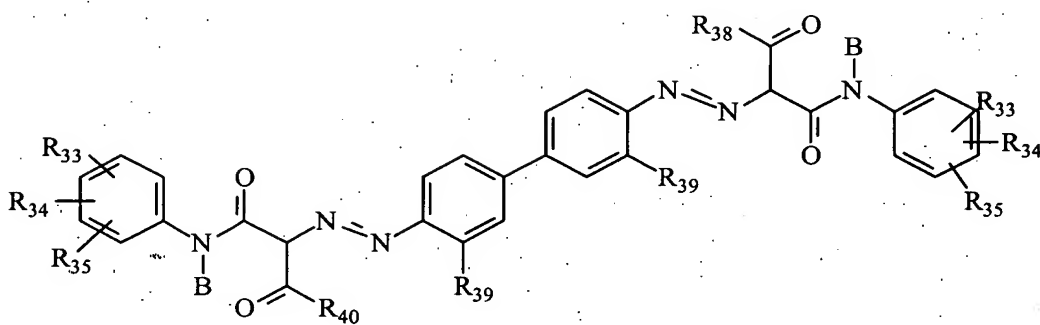




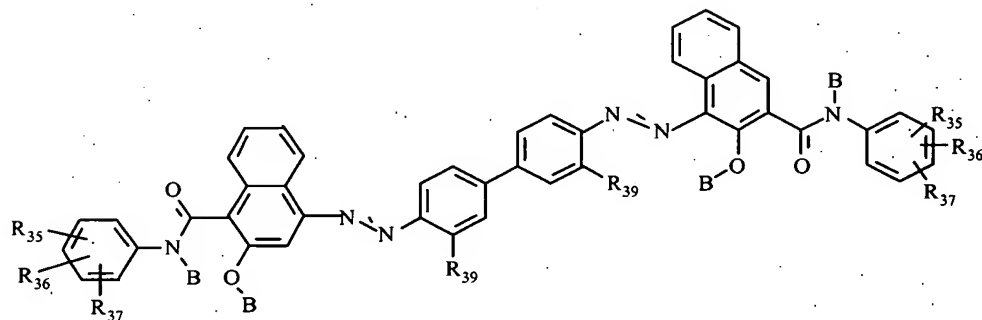
(XXV)



(XXVI)



(XXVII)



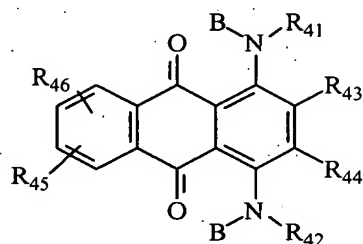
(XXVIII)

in which

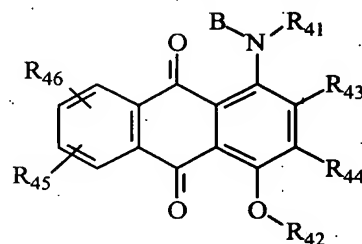
R<sub>33</sub>, R<sub>34</sub>, R<sub>35</sub>, R<sub>36</sub>, R<sub>37</sub>, R<sub>38</sub> and R<sub>40</sub>, independently of each other, each represent a hydrogen atom, a halogen atom, a linear or branched C<sub>1</sub>-C<sub>6</sub> alkyl group, a C<sub>1</sub>-C<sub>6</sub> alkoxy group, a nitro or acetyl group or an SO<sub>2</sub>NH(C<sub>1</sub>-C<sub>6</sub>)alkyl group,

$R_{39}$  represents a hydrogen atom, a halogen atom, a linear or branched  $C_1$ - $C_6$  alkyl group or a  $C_1$ - $C_6$  alkoxy group,

- the anthraquinone derivatives of formula (XXIX) or (XXX)



(XXIX)



(XXX)

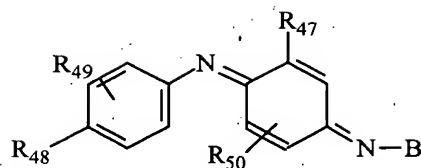
in which

$R_{41}$  and  $R_{42}$ , independently of each other, represent a hydrogen atom, a halogen atom, a linear or branched  $C_1$ - $C_{12}$  alkyl group, a  $C_1$ - $C_6$  alkoxy group or a  $C_6$ - $C_{12}$  aryl group, which is unsubstituted or substituted with one or more halogen atoms, one or more linear or branched  $C_1$ - $C_6$  alkyl, nitro or acetyl groups, or a group  $SO_2NH$ -( $C_1$ - $C_6$ )alkyl or  $SO_2NH_2$ ,

$R_{43}$  and  $R_{44}$ , independently of each other, represent a hydrogen atom, a halogen atom, a linear or branched  $C_1$ - $C_6$  alkyl group, a  $C_1$ - $C_6$  alkoxy group, a nitro, cyano,  $CONH_2$ ,  $SO_2NH$ ( $C_1$ - $C_6$ )alkyl,  $SO_2NH_2$ ,  $SO_3H$  or  $SO_3Na$  group or a  $C_6$ - $C_{12}$  aryl group, which is unsubstituted or substituted with one or more halogen atoms, one or more linear or branched  $C_1$ - $C_6$  alkyl, nitro, acetyl or  $SO_2NH$ ( $C_1$ - $C_6$ )alkyl groups or with  $SO_2NH_2$ ,

$R_{45}$  and  $R_{46}$  represent, independently of each other, a hydrogen atom, a halogen atom, a  $C_1$ - $C_6$  alkoxy group or a nitro, cyano, hydroxyl or amino group,

- the azomethine derivatives of formula (XXXI)



(XXXI)

R<sub>47</sub>, R<sub>48</sub>, R<sub>49</sub> and R<sub>50</sub>, independently of each other, represent a hydrogen atom, a halogen atom, a linear or branched C<sub>1</sub>-C<sub>6</sub> alkyl group, a C<sub>1</sub>-C<sub>6</sub> alkoxy group; a nitro, cyano, CONH<sub>2</sub>, SO<sub>2</sub>NH-(C<sub>1</sub>-C<sub>6</sub>)alkyl, SO<sub>2</sub>NH<sub>2</sub>, SO<sub>3</sub>H or SO<sub>3</sub>Na group or a C<sub>6</sub>-C<sub>12</sub> aryl group, which is unsubstituted or substituted with one or more halogen atoms, one or more linear or branched C<sub>1</sub>-C<sub>6</sub> alkyl, nitro, acetyl or SO<sub>2</sub>NH(C<sub>1</sub>-C<sub>6</sub>)alkyl groups or with SO<sub>2</sub>NH<sub>2</sub>.

6. Process for dyeing keratin fibres, in particular human keratin fibres and more particularly the hair, this process comprising the following steps:

- (i) a composition containing, in a medium that is suitable for dyeing, one or more latent pigments according to Claims 1 to 5 is applied to the keratin fibres,
- (ii) the dye composition is left to act for a leave-in time ranging from 1 to 60 minutes and preferably from 10 to 45 minutes,
- (iii) after an optional rinsing operation, the latent pigment on the said fibres is treated thermally, chemically or photochemically, preferably by means of a jump in pH,
- (iv) steps of washing with shampoo and drying are performed.

7. Process according to Claim 6, characterized in that the latent pigment on the keratin fibres is treated with a solution of an alkaline compound.

8. Process according to Claim 7, characterized in that the alkaline agent is chosen from aqueous ammonia, alkanolamines, alkaline hydroxides and alkaline carbonates.
- 5 9. Cosmetic composition containing at least one latent pigment and at least one compound chosen from monoalcohols or polyols that are liquid at 25°C, acidifying agents and surfactants.
- 10 10. Composition according to Claim 9, characterized in that the latent pigment is of formula (I) defined in one of Claims 1 to 5.
11. Composition according to Claim 9 or 10, characterized in that the acidifying agent is of mineral or organic nature.
- 15 12. Composition according to any one of Claims 9 to 11, characterized in that the surfactant is of nonionic, anionic, cationic or amphoteric nature.
- 20 13. Composition according to any one of Claims 9 to 12, characterized in that the concentration of acidifying agent is between 0.0001% and 20% and preferably between 0.01% and 10% of the total weight of the composition.
- 25 14. Composition according to any one of Claims 9 to 13, characterized in that the concentration of surfactant(s) is between 0.05% and 50% and preferably between 0.1% and 20% of the total weight of the composition.
15. Composition according to one of Claims 9 to 14, characterized in that the concentration of monoalcohols or polyols that are liquid at 25°C is

between 0.05% and 50% and preferably between 0.1% and 20% of the total weight of the composition.

16. Composition according to any one of Claims 9 to 15, characterized  
5 in that its pH is less than 7.

17. Two-compartment device for dyeing keratin fibres, in particular  
human keratin fibres and more particularly the hair, characterized in that  
the first compartment contains a dye composition containing, in a medium  
10 that is suitable for dyeing, at least one latent pigment used according to  
Claims 1 to 5, and the second compartment contains a dilute solution of a  
chemical agent capable of rendering insoluble the latent pigment as the  
sparingly soluble original compound.

15 18. Device according to Claim 17, characterized in that the second  
compartment contains a solution of an alkaline agent.

19. Device according to Claim 17, characterized in that the first  
compartment contains a composition according to any one of Claims 9 to  
20 16.